

Unlocking the Export Potential of Armenia's Landlocked Dairy Sector

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Abstract

Forty-two percent (42%) of the Armenian population lives below the poverty line (\$1.00/day) and thirty percent (30%) live below the food line (ROA National Census, 2005). Before World War I, goat breeding in Armenia comprised 7-8% of all animal breeding. From an estimated population high of 273,000 head, the population decreased from 222,000 head in 1941 to 14,000 by 1992 (Scarfe, 1999). Despite previously high populations, native breeds in Armenia, which have adapted to harsh mountainous environments, produce low volumes of milk and low quality fleece. Focusing specifically upon the development of the Armenian dairy goat industry, this case study illustrates three central and dynamic lessons learned from the historical United States Marketing Assistance Project (USDA-MAP) 1996-2005: (1) With solid, upfront market research, an entire industry can be created by rebuilding once existing livestock populations; (2) Every link in the marketing chain, from farm gate to fork, must be developed and completed to shift from domestic to international marketing; (3) Essential to meeting the specific needs of committed local partners, the ability to provide state of the art expertise as requested in the field is essential.. This analysis documents these three lessons-learned with global implications for rural development work.

Introduction

In 2005, the United States Department of Agriculture's Marketing Assistance Project (USDA-MAP) closed as the USDA's largest and longest running agribusiness development project anywhere in the world. With an operating budget of approximately \$7.5 million annually and 100 employees, USDA-MAP influenced the development of Armenian agribusinesses and rural poverty reduction over a nine year period, investing over \$65 million dollars. The USDA-MAP portfolio included financial assistance in the form of loans, grants, and credit clubs; expertise and capacity building among Armenian counterparts in agricultural extension, animal health and production, food safety, and development of local and international markets. Focusing specifically upon the development of the Armenian dairy goat industry, this case study illustrates three central and dynamic lessons learned from (USDA-MAP) experience. With solid, upfront market research, an entire industry was created by USDA-MAP by at first rebuilding the goat population and then an entire commercial goat industry. Every link in the marketing chain---from farm gate to fork---was developed and completed to shift from domestic to international marketing within four years. Essential to meeting the specific needs of the committed local partners was the ability to provide state-of-the-art expertise as requested in the field.

Significance

Armenia is a small, mountainous, landlocked country with few natural resources. With an area of 29,800 kilometers, it borders Georgia, Azerbaijan, Iran, and Turkey (see Map 1). An official census in 2001 placed the permanent population in Armenia at around 3.2 million, but it is suspected to be far less. An estimated sixty-four percent (64%) of the population lives in urban areas with fifty-four percent (54%) in the capital city of Yerevan. Forty-two percent (42%) of the population live below the poverty line (\$1.00/day) and thirty percent (30%) live below the food line (CIA Factbook, 2005).

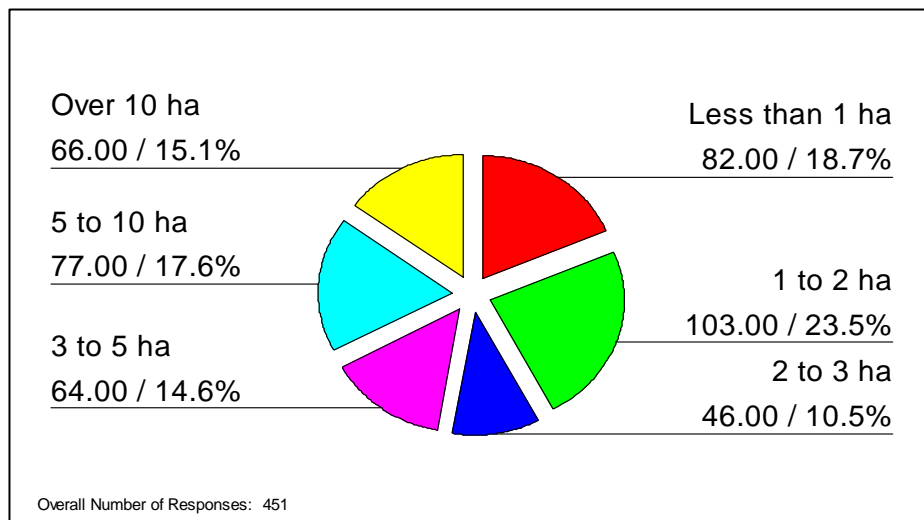


Map 1: The Republic of Armenia.

Between 1920 and 1991, Armenia was one of fifteen Republics which comprised the Soviet Union. By 1992, with the collapse of the Soviet Union, Armenia suffered a sharp economic decline as the result of three events---a devastating earthquake in the north that occurred a few years earlier, a full-scale war with their neighbor Azerbaijan over a disputed region called Karabakh, and the immediate succession of economic support from Russia. All of these left Armenia with a trade and transit embargo around most of it; an energy shortage; 230,000 Armenian refugees from Azerbaijan; and two thirds of the population surviving on humanitarian assistance (CIA Factbook, 2005).

In five years, agricultural output dropped seventeen percent (17%) and livestock numbers halved. Land privatization led to fragmented small plots, and credit became unavailable as crop production shifted from commercial farming to subsistence. Inflation set in. Privatization alone left approximately 320,000 farmers with scattered parcels of land—averaging 1.4-1.7 hectares of arable land (World Bank, 1995). Of 451 farmers who participated in a survey on land parcels, 103 or 23.5% owned 1-2 ha, 92 (18.7%) less than 1 ha, 64 (14.6%) 3-5 ha, 77 (17.6%) 5-10 ha, and 66 (15.1%) over 10 ha. Of the survey population, 42.2% had 2 ha or less (refer to Table 1).

Table: 1 Survey of Small Landholders Following Privatization (N=451)



Livestock was privatized at the same time as land allocating five cattle and 20 sheep per household (Sardaryan, 2001), but the major constraints with raising livestock were genetic materials with low performance characteristics, the absence of an Extension service and research support activities, and viable markets.

In 1992 Armenian officials asked the United States government for humanitarian assistance and the U.S. Department of Agriculture responded with an Armenian agricultural extension program focusing on farm level production. In 1996, this evolved into agribusiness level assistance and became market-driven instead of production driven. The organization created to provide this assistance was called The Marketing Assistance Project or MAP.

USDA-MAP History

Between 1996 and 2005, the United States Department of Agriculture's Marketing Assistance Project (MAP) in Armenia was the largest and longest running agribusiness development project of its kind anywhere in the world. Its mission was to assist farmers and agribusinesses in producing, marketing, and exporting food and beverage products to increase incomes, create jobs, and raise the standard of living for rural Armenians. Through a rural marketing assessment, MAP identified that the agricultural sector suffered from a lack of market information, farmer associations and cooperatives, in addition to the absence of support services, progressive public policies, and long distances between producers and consumers. One of the main tools to combat these technical and marketing problems was to supply land-grant university consultants on short and medium term assignments.

The MAP approach to market development began with identifying a profitable market for a product. Examining the dairy sector, it was clear farmers produced small volumes of poor quality milk without regard to sanitation at the farm level or refrigeration thereafter. Farmers possessed almost no knowledge of demand and pricing strategies. If animals or milk products---such as cheese---were marketed (as opposed to bartered) it was at a low price offered to middlemen.

The Development of the Armenian Dairy and Cheese Sector

Beginning in 2002, the Marketing Assistance Project began milk collection and cooling centers and farmers' cooperatives for cow and goat milk. Since then more than twenty-two milk collection and cooling centers have been created, which include over 2400 farmers selling quality milk to processors. Today ninety-five percent (95%) of the cheese varieties in the Armenian domestic market have been developed by USDA expertise. More than twenty-two different varieties such as Emmental, Blue, Smoked, String, Holland, Edem, Tom, and others have been developed and exported (USDA-MAP, 2004).

Later in 2002, in cooperation with Oklahoma's Langston University, a large potential market for Armenian goat cheeses was identified in Glendale, California---considered one of three Armenian epicenters in the United States with an estimated Armenian population of 78,000 (U.S. Census 2000)---and a smaller market in the neighboring Republic of Georgia. The demand was upwards of 200 tons. MAP set about working with every link in the marketing chain from farm to fork. This meant developing an entire goat cheese industry.

Goats are among the smallest domesticated ruminants and they thrive in arid, semitropical, or mountainous countries, like Armenia. More than 460 million goats in the world produce over 4.5 million tons of milk and 1.2 million tons of meat annually. Goats are friendly animals; with proper attention they maintain good health and can be managed easily by children (Attfield, 1990).

More people consume dairy products from goats than from any other animal in the world. Goat's milk greatly improves the diet of many rural families by exceeding cow milk in

terms of protein content and it can be used for high quality cheese---Feta, Brinza, Souligouni, *etc.* A goat eats little, occupies a small area, and produces enough milk for the average unitary family—an average doe yields 2 liters per day. Goats are browsers, preferring new growth of shrubs and the seed heads of grasses to lower quality older growth in a pasture. They select the most nutritious parts of plants, can use a wide range of forage, and hence are able to survive in areas where other livestock do not.

The Marketing Assistance Project's general goals for establishing a goat industry development project in Armenia were: alleviation of poverty; change of small farmers' operational environment; introduction of new technology to increase productivity; and the improvement farmers' living standards by creating opportunities and conditions for market access.

To achieve these goals, the Project began with the development, testing, and provision of proven genetics, the development and promotion of economical feeding systems and disease control interventions that would help increase animal productivity. Government and private sector involvement in on-farm development and Extension opportunities emphasized capacity building in applied and problem-solving research. USDA-MAP strategically created opportunities for small farmers to observe and be involved in the development process. The tactics employed to achieve these general and specific objectives included: setting up small dairies in villages for processing goat milk; supporting and improving traditional Armenian cheese production and developing new types of goat cheeses; examining possibilities for direct marketing and transportation; establishing a niche market for goat milk products locally; and developing an export market.

Goat Breeding In Armenia

Before World War I, goat breeding in Armenia comprised 7-8% of all animal breeding. Almost all regions in Armenia were involved and there were approximately 273,000 head. From 1941 to 1992, goats decreased from 222,000 head to 14,000 head. Today there are approximately 48,000 head. For fifty years Armenian goat breeding had given minimal consideration to genetic improvement or the problems of herd inbreeding (Hutchens, 2001). Local breeds express phenotypic characteristics as a genetic mix of European type breeds (erect ears), some Nubian type (pendulous ears), and the heavy influence of mohair producing Turkish Angora. Local breeds produce low quality fleece and a low volume of milk. The average milk yield for indigenous varieties is 0.7 liters/day. They are, however, characterized by a strong constitution and hard bone system (Scarfe, 1999).

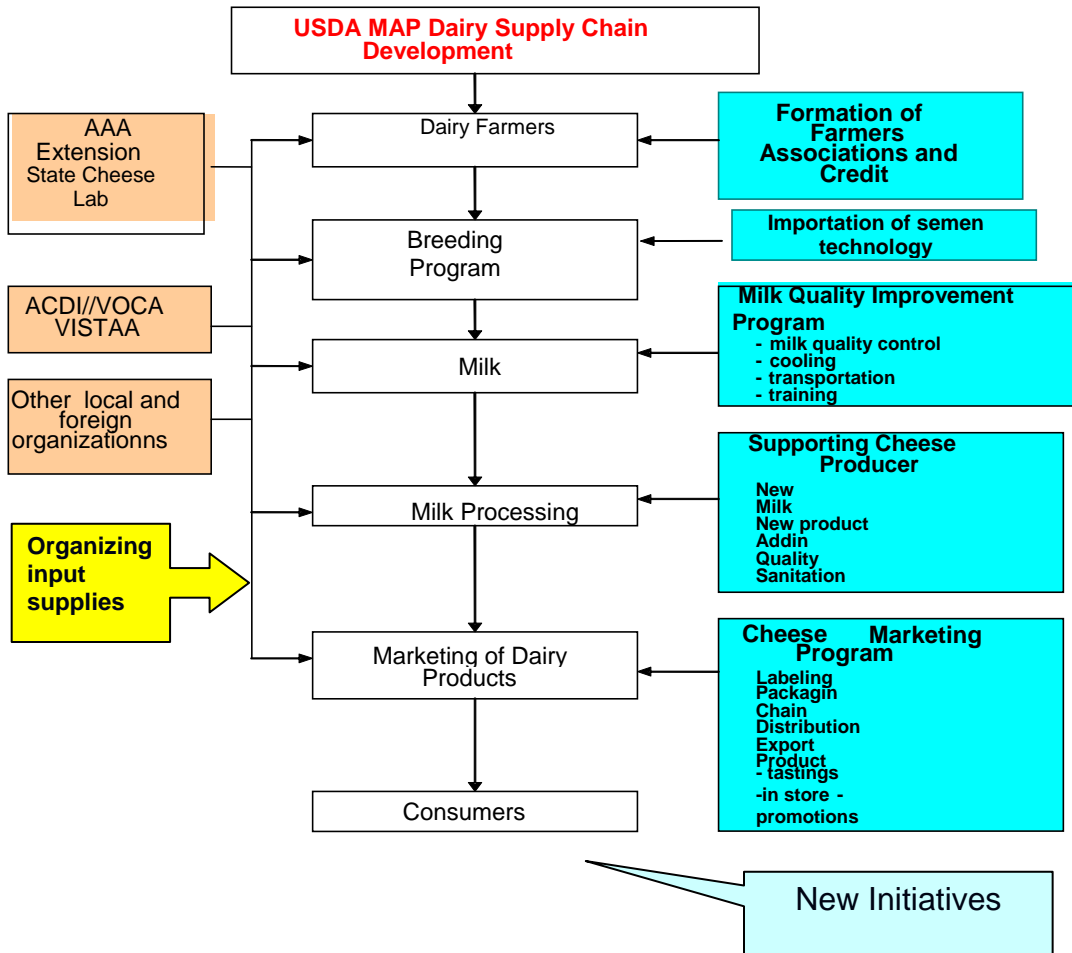
Within the framework of USDA's Goat Industry Development Program (GIDP), MAP worked with the only goat research institute in the United States, the E. Kirka de la Garza Institute for Goat Research at Langston University to develop a breeding program for recording, selection, and multiplication of improved goat genetics. Local villagers were eager to receive hybrid goats from Western and local Armenian varieties, and so the Armenian Improved Dairy Center (ARID) became an official breeding center in September, 2000 (Gipson, 2002).

Saanen, Toggenburg, Alpine, and Nubian breeds, the world's leaders in milk production, were chosen to genetically improve breeding goat production. Originally from Switzerland, Saanens have been bred for odor-free, totally white milk. This breed is light cream in color. They may or may not have horns, are usually short-haired, and are understood around the world as leading milk producers. Toggenburgs are brown with white strips on the face, ears, and legs, are mostly short-haired, and have erect ears. They, too, are of Swiss origin but are shorter and lighter than Saanens. They are reliable milk producers summer and winter, in temperate and tropical zones. Alpines, another Swiss breed, are short-haired and as tall and strong as Saanens. They are colored white on black and produce less milk, usually, than Saanens or Toggenburgs. Nubians originated in Africa and the breed as it exists today was developed in England by crossing Nubian bucks with British dairy breeds. This breed has a heavy arched nose and long ears, spiral horns, and short hair. They are as tall as Saanens but give milk higher in fat content. They are less tolerant of cold but do well in hot climates (Attfield, 1990).

Goats can breed at any month of the year, but in temperate climates they breed seasonally, generally in the autumn (September and October) as the days become shorter and they produce young about five months later. Most breeds reach sexual maturity at about five months. MAP began a breeding program in 1999 whereby via natural breeding and artificial insemination, first generation crossbreeds between Western purebreds and local breeds produced the Yeghegnadzor breed which doubled the volume of milk from an average of 0.7 liters/day to 1.5 liters/day (Babyan, 2005).

Market Chain Development Approach

To develop a commercial goat cheese industry, MAP closely examined and identified all the links in the marketing chain necessary to provide the consumer with high quality products. In addition to working with farmers on breeding issues, housing, feeding, and herd health concerns were addressed. Armenian Agricultural Academy professors, local Extension agents, and international consultants all contributed at this level. Help was provided to farmer groups to organize and raise credit and meet standards set by a milk quality program. Once milk was collected, additional interventions allowed for cheese making, sanitation, and quality considerations to be implemented. Finally, MAP completed the chain with a cheese marketing program that delivered premium goat cheese to a demanding consumer.



Farmer Cooperatives

At the same time as the breeding program, MAP worked with farmers to create milk marketing cooperatives that collected milk and transported milk to a central cooling and collection station. MAP helped the cooperatives source, import, and lease economical milk cooling tanks from Italy and taught them to keep complete records of how much milk they collected and from what farmer to assure proper payments for milk was made. Quality testing was also undertaken before milk was accepted, rewarding small producers with clean, wholesome milk and rejecting those with tainted product. In addition, to be sustainable, training was provided to milk cooperatives in leadership, governance, democracy, transparency, and the development of trust between the association and its members.

Goat Cheese Plants

Concurrent to this, work began with several villages to begin goat cheese plants. The processing facilities were based in those villages that had the greatest number of goats and a growing milk cooperative. Small grants were provided to remodel facilities and provide a

refrigeration room, procure lab equipment for food safety concerns, and eventually leases were offered for pasteurizing equipment. In addition, a series of American and European cheese making experts worked side-by-side to provide training to improve standard goat cheese products and introduce new ones.

Cheese marketing

A cheese marketing program completed all the links in the marketing chain as the Marketing Assistance Project helped clients with packaging, labeling, product promotion, and shipping. Support for design and procurement of packaging included clay pots, glass jars, and plastic 1 and 7 liter buckets. Labeling design and printing included multiple languages, net weight, ingredients, *etc.* Product promotion ranged from market samples, and domestic trade shows to retailing and international trade shows. Shipping was made possible by procuring enough volume from numerous producers to meet market demands, creating uniform packaging, negotiating contracts, and export management services. The initial market potential was low, but soon increased by first 50 then 100%, and international markets were also identified in Russia (2002) and California (2003). Five years ago there was no production of commercial goat cheese in Armenia and today the demand outstrips the supply as a 40 ton goat cheese order was received in 2005 by a U.S. West Coast distributor.

Conclusion

With the change to an independent state after the fall of the Soviet Union, Armenia's infrastructure suffered dramatically. The agricultural industry had to rebuild the entire supply chain. In a variety of sectors, USDA-MAP worked from the farm gate to developing international markets. The ARID Goat Center and the development of a viable commercial goat industry was one of those projects, and it taught three valuable lessons: (1) With solid, upfront market research, an entire industry can be started and thrive in a short time; (2) Using the development model of the U.S. Department of Agriculture's Marketing Assistance Project in Armenia---comprised of offering an integrated package of technical, marketing, and financial assistance---an agricultural sector can grow to supply new products not only for domestic but international consumption; (3) Every link in the marketing chain, from farm-gate to fork, must be developed and complete to shift from domestic to international marketing, and this must be accomplished with the latest technical assistance offered to committed local partners. Today, USDA-MAP's successor, the Center for Agribusiness and Rural Development (CARD), builds on these lessons in the development of Armenia's sheep cheese industry in 2006.

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